

OPERATING INSTRUCTIONS FOR THE FISCHER
MODEL "J" UNIVERSAL LOW VOLTAGE
GENERATOR

For The
Production of Continuous or Surging Alternating or
Direct Currents

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A highly perfected mechanical electrical device, the embodiment of several years' research and experimental work to produce an apparatus combining in one compact unit all the usable low voltage currents; a true straight line galvanic; surging galvanic. An entirely new method of generating these modalities enabling the applications of more voltage and milliamperage with less discomfort to the patient than with any other known means.

The galvanic current is remarkably smooth and comparable to that from a battery source; absolutely without fluctuations. The sine waves are produced with positive repetition, at any speed, current volume or nature of surge.

The construction is at once simple, compact and durable; there are less moving parts, with correspondingly less danger of possible troubles.

In operation this machine is also quite simple; you change from one type of current to another quickly, by merely turning a knob; nothing to remove, nothing to add. Less moving parts, and extra heavy construction wherever necessary guarantees an almost endless life to the entire apparatus. This unit is practically noiseless in operation and capable of delivering all currents from zero potential to more volume than is ever required therapeutically.

The available currents are clearly indicated by diagrams.

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The dwell periods are produced by a more rapid rise and fall of voltage during the surge, the time so gained being used in maintaining the highest or

This change is made by means of switch #3 placed between meters. For upper scale, snap this switch up; for lower scale, down.

The double reading(both left and right from zero) is provided that the operator may quickly read the oscillations of the wave currents. Should the meter needle fail to turn to exact zero after treatment or at any time, this may be corrected by turning the small adjusting screw set in the center of the lower section of the meter frame either to Right or Left as indicated.

The volt meter (#2) is provided with single scale and reads from 0 to 150 both from left and right. There is no adjustment or control necessary in connection with this meter as with the milliamper meter. When the needle fails to turn to exact zero after treatment or at any time, this may be corrected by turning the small adjusting screw set in the center of the lower section of the meter frame either to Right or Left as indicated.

Nos. 4 and 5 are volume controls; #5 being the main volume control and #4 the vernier or auxiliary volume control. Volume Control #5 is used to adjust the current output to the patient at approximately the current desired and for finer adjustment, adjust switch #4. In other words, switches #4 and #5 work together, for example, with switch #5 on point 4 you will obtain a certain reading on the milliamper reading. This may be just a trifle more or less than you care to deliver, yet setting it back to 3 or up to 5 will either increase or decrease too much. Leaving control #5 on point 4 you will find that you can increase the volume slightly by turning #4 to the Right. By using both controls you can deliver to the patient exactly the amount of current desired.

Switch #6 regulates the number of surges per minute. This switch is directly connected to a sliding drive on the motor shaft and surges from 6 to 42 per minute may be obtained according to scale.

Switch #7 is the main operating switch. When pushed to right, the current is "on" -- to left, "off".

Switches Nos. 8 and 9 are current selectors. With the pointer on #9, set on 1, the machine will deliver either one of the five direct currents as indicated on left half on graphs on top plate (1-1; 2-1; 3-1; 4-1; or 5-1) depending on setting of selector #8. With #8 on 1 and #9 on 1, a straight galvanic current is produced. With #8 on 2 and #9 on 1, a galvanic surge is produced as indicated on graph 2-1. With #8 on 1 and #9 on 2, a rapid alternating current as indicated on graph 1-2 is produced, and so on. (10 combinations in all)

The distinctive and very valuable feature of this type of construction over the cam mechanism is the fact that while with the cam the surges are only to be produced in multiples of a certain figure, as for example, 10, 20, 30, etc. with the Fischer Low Voltage and Wave Current Generator you can obtain any desired number of surges per minute -- 6 up to 42 -- without stopping the machine or without adding or removing any parts.

No. 10 is the pole changing switch. When administering galvanism it is often necessary to reverse the direction of the flow of current momentarily before removing electrodes; hence this handy pole changer.

No. 11 are patient's outlets. That outlet toward which switch #10 is pointing is always positive pole.

In construction this apparatus is distinctly simple and rugged. Each movable part is run at slow speed and the danger of wear is therefore reduced to a minimum. Ball-bearings are mounted at vulnerable points. Oiling is made simple and convenient. The contact brushes are easily replaced when necessary.

The Fischer Universal Low Voltage and Wave Generator is compact in construction and requires no installation service. The unit is shipped to you complete, and it is only necessary to connect the outfit to an electric current supply as indicated on the name-plate. No attachments need be added and nothing removed from the outfit as you receive it.

Good contact is very essential when using currents of low voltage, and

when a current of only 2 or 3 milliamperes is being used you should make absolutely sure that the cord tips, switches, electrode contacts, etc., are perfectly clean, and fit snugly.

A loose wire will sometimes be the cause of a great deal of inconvenience, as the current may be carried across momentarily and then broken again by vibration, etc.

Dirt or dust under the contact, or corrosion of the metal itself, will create so much resistance that a small amount of current cannot pass. Sometimes your patient will feel no sensation as a result of poor contact, until you have turned on a considerable volume of current -- enough to break down the interfering resistance -- and a disagreeable shock is the result.

Before disconnecting cords or electrodes, always be sure that your current has been entirely turned off at the machine.

TO OPERATE MACHINE

See that switch #7 is set left or off position. Set levers 8 and 9 at proper points to deliver currents as indicated on graph on center of top plate.

You will note the ball joint on the end of the cord is clipped firmly into place, and that regardless of how you may pull the cord in any direction, contact cannot be broken. You must actually grasp the roughened part of the cord tip in your fingers and lift it out to break contact. This is a very valuable feature as perfect contact is absolutely necessary where small amounts of current are being used.

The polarity switch No. 10 indicates flow of current. When pushed to Right "positive" current is delivered from outlet on that side. When pushed to Left, "positive" current is delivered from Left side.

The potential (voltage) obtained is observed on volt meter No. 2 and the volume of current on the milliampere meter No. 1. Volume of current is controlled by knobs Nos. 4 and 5, No. 5 being the major controller and No. 4 the vernier control to obtain finer and more accurate settings. When you close

switch No. 7, that is by pushing lever to Right, you let line current through apparatus.

When using the moist surface electrodes, be sure that they are first thoroughly saturated in warm water. Electrodes should be permitted to soak for some time (new electrodes as much as an hour and a half) before applying to the body. The next time you use these pad electrodes you will find that they will absorb the moisture much quicker.

THE FISCHER MODEL "J" UNIVERSAL LOW VOLTAGE GENERATOR

1-1 STRAIGHT GALVANIC

1-1 The straight galvanic (or direct and constant current) is preeminently a chemical current. No matter how many of the "57" or more varieties or modifications of the galvanic or direct current any certain make of low volt apparatus may conveniently evolve it is the straight galvanic that is invariably indicated for strictly chemical effect.

Electrolysis; removal of superfluous hair; absorption or improved resiliency of scar tissue; ionization of various chemicals; chemico-physiological sedation or stimulation (according to respective polarity), all these special effects are only to be primarily achieved through the chemical action of a smooth non-pulsatory galvanic or direct current.

To be effective, the galvanic current must be smooth. The Galvanic current furnished by this apparatus is smooth by test: and we have the infallible oscillographic records to prove it. And beside this achievement in smoothness, which means effectiveness, we have attained an accuracy and fineness of current regulation incomparably in advance of all former instruments.

Now you can use Galvanism for all of its many and varied uses -- without jerky, painful and inelegant sensations which have been responsible for discarding this energy in the past.

1-2 RAPID ALTERNATING 260 PER SECOND

1-2 The Rapid Alternating Current, 260 cycles per second, on account of its rapid polarity changes or reversals possesses no polarity or chemical effects. It is strictly mechanical in its action. However, owing to the very fact of its rapidity of alternations, it is indicated for a preliminary anodyne treatment of acutely sensitive sprains, myositis, neuralgia, preparatory to more physiologically indicated but not so quickly alleviative applications.

When you sweep 260 oscillations per second through a muscle you get considerable mechanical response -- but the chemical response is practically eliminated. Exactly the requirements for simple, effective muscle massage where the electrolytic chemical actions must be eliminated.

2-1 GALVANIC SURGE

2-1 The Galvanic Surge possesses all the polarity characteristics of the straight galvanic but, on account of its intermittent -- though slow -- voltage rise and fall, is not so clearly indicated for intensive chemical effect. It is only useful, though quite valuably so where local polar effect is desirable concomitantly with a mechanical or contractile response, this latter being more accentuated or localized at the negative side.

It is an excellent current to favorably impress intestinal peristalsis; flabby musculature; and for combined chemical and mechanical effect upon scar tissue.

A contracting muscle gives rise to a surging electric current which can be measured and its curve traced: and a similar current, the surging galvanic, sent into the muscle, brings about the same kind of physiological contraction of the muscle. This is the energy that proves so useful when the muscles require stimulation to assist in re-coordinating the nerve-muscle action in the recovery from degenerations -- peripheral nerve injuries.

2-2 RAPID ALTERNATING IN SURGES

2-2 The Rapid Alternating Current in Surges possesses no polarity effects but elicits a decidedly strong contractile response.

It is useful to induce such effect through the respective spinal nerves. Indicated as a purely mechanical sequent treatment to the application of galvanism, aiding in the more speedy and general dispersion of electrolytic reaction, thereby obviating possibly resultant stasis or excessively prolonged hyperemia; and is also quite often indicated as adjunct treatment after short wave and infra-red.

3-1 GALVANIC DWELL SURGE $\frac{1}{4}$ REST PERIOD

3-1 The Galvanic Dwell Surge with $\frac{1}{4}$ rest period possesses strictly polar and chemical effects with a decidedly accentuated pull or contraction, the exertion being sustained for a $\frac{3}{4}$ period and followed with a $\frac{1}{4}$ rest. This current will be indicated in place of the galvanic surge whenever a more pronounced mechanical effort or pull is desirable and can be initially employed or substituted later when such accentuated action may be deemed advisable.

Sometimes a sustained contraction is desirable and of apparently much benefit. Bring the muscle to its state of contraction, keep it there a while, then release it.

3-2 RAPID ALT. IN DWELL SURGES $\frac{1}{4}$ REST PERIOD

3-2 The Rapid Alternating in Dwell Surges with $\frac{1}{4}$ rest period possesses no polarity or chemical action, whatsoever, and is therefore strictly mechanical in action, and to be employed wherever such effect is more powerfully indicated than with the 2-2 modification.

If you want sustained contraction and combined tonic (electrolytic) effect, 3-1; 5-1 gives a long rest instead.

4-1 SLOW SINUSOIDAL

4-1 The Slow Sinusoidal is not indicated for strictly chemical effect because

of its regularly reversing and nullifying alternating polarity, but -- on account of its extremely slow polarity reversals -- is decidedly trophic in effect, which, with the accompanying contractile stimulation, is therefore useful in the treatment of relaxed musculature; it may also be utilized for neuro-muscular diagnosis and treatment.

Useful for deep massage and apparently valuable in smooth muscle treatment.

4-2 RAPID ALTERNATING IN SURGES

4-2 Apparently the same as 2-2. Useful for inciting nerve reflexes through direct application to the spine; also as a mechanical stimulant or muscular massage after galvanism, short wave or infra-red treatments,

5-1 GALVANIC SURGE 2/3 REST PERIOD

5-1 The Galvanic Surge with 2/3 Rest Period is similar to 2-1 but with lessened chemical effect. On account of the prolonged and regular rest period it is indicated for the mechanical stimulation of delicate and sensitive structures concurrently with the trophic effect of the constant polarity. It is also useful where a slow rate of contraction may be physiologically required, as for intestinal stimulation.

5-2 RAPID ALTERNATING SURGE 2/3 REST PERIOD

5-2 The Rapid Alternating Surge with 2/3 rest period, possessing no polarity, is useful where strictly mechanical response through the nerve centers is desired. Owing to the prolonged, regularly recurrent rest period, this current modification may be beneficially applied for longer periods of treatment than is advised with the more usual surge and wave currents.

It furnishes an excellent passive, general or local, massage for the convalescent; far more pleasant, convenient, and satisfactory than massage.

If you require the effect without electrolytic complication you get it exactly with 3-2; and 5-2 for long rest periods.

STUDY THIS LITTLE SYNOPSIS

If it's smooth muscle, or degenerated striated muscle, the energy to consider is

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|-----|--|
| 1-1 | |
| 2-1 | from which you select according to the |
| 3-1 | |
| 4-1 | additional needs -- polarity or electrolytic |
| 5-1 | effect, etc. |

If it's just massage that is required, but a real, deep physiological massage that replenishes the blood supply of the muscle groups, that imparts vigorous tone, that nourishes by milking out the effete materials and provoking a gush of rich fresh blood, it's

- | | |
|-----|--|
| 1-2 | |
| 2-2 | from which you select according to the minor |
| 3-2 | |
| 4-2 | needs required. |
| 5-2 | |

Every current meets a physiological purpose in a physiological way -- because we built the apparatus to provide stimuli which resemble the stimuli of physiologists, -- and users say we succeeded.

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